

ment. A sling seat should not be used as it places the femoral heads in a position that predisposes to subluxation. Rather, a solid level seat should be the rule.

In children with spasticity and extensor tone predominance, simple positioning to place the head forward and align hips, knees and ankles at 90 or more degrees of flexion can inhibit severe extensor thrust. An abduction pommel with hip flexion and a lap belt are useful to overcome scissoring and hold these children in a more functional and stable posture. An H-harness, lap tray and lateral supports are useful in spastic as well as hypotonic children to provide greater trunk stability.

Children with neuromuscular disease benefit from custom seat inserts. Lumbar extension and pelvic symmetry were suggested to reduce the incidence and severity of scoliosis. In the presence of fixed skeletal deformities, custom seating allows for greater comfort as well.

In severely physically disabled children, a motorized wheelchair with adaptive seating can provide independent mobility. A child between 20 and 39 months of age with normal intelligence can achieve—in less than 12 hours and in one to seven weeks of training—effective and safe operation of this device. The importance of independent mobility in stimulating a child's social, emotional and intellectual growth cannot be overemphasized.

GABRIELLA E. MOLNAR, MD
JENNIE G. BYRD, MD
Oakland, California

REFERENCES

- Butler C, Okamoto GA, McKay TM: Powered mobility for very young disabled children. *Dev Med Child Neurol* 1983 Aug; 25:472-474
- Douglas R, Larson PF: The LSU reciprocation gait orthosis. *Orthopedics* 1983 Jul; 6:834
- Manley MT, Gurtowski J: The vertical wheeler: A device for ambulation in cerebral palsy. *Arch Phys Med Rehabil* 1985 Oct; 66:717-720
- Molnar GE: *Pediatric Rehabilitation*. Baltimore, Williams & Wilkins, 1985, pp 28-39, 159-167, 184-193
- Redford JB: *Orthotics Etcetera*, 3rd Ed. Baltimore, Williams & Wilkins, 1986, pp 352-383, 482-484, 509-511

Sonographic Urodynamics

URODYNAMIC TESTING to determine dysfunctional problems of the urinary bladder is now a well-established procedure. A cystometrogram and a simultaneous electromyogram of the periurethral sphincter or simultaneous urethral pressure are necessary for diagnosing detrusor sphincter dyssynergia.

The recent advent of transrectal sonography enables us to view the bladder, bladder neck and urethra during voiding in conjunction with urodynamic studies. The sonographic voiding cystourethrogram is equally as good and sometimes superior to the radiographic voiding cystourethrogram for showing the adequate opening and funneling of the bladder neck and posterior urethra in patients with neuromuscular dysfunction of the bladder. Advantages of the transrectal sonography include the ability to visualize the surrounding soft tissue, enabling detection of benign prostatic hypertrophy, carcinoma or prostatic calculi; there is no radiation to patient or examiner; the ability to continuously monitor pharmacologic manipulation of the bladder neck and posterior urethra during the procedure; the ability to obtain a more accurate recording of residual urine, and the study involves no catheterization, thereby reducing the risk of urinary tract infections.

Combined urodynamics and transrectal sonography have been instrumental in our understanding of neurogenic voiding

dysfunction and the role detrusor sphincter dyssynergia plays. Detrusor sphincter dyssynergia is one of the important determinants for upper urinary tract changes in patients with spinal cord injuries. Transrectal sonography has helped to define a hitherto-unrecognized bladder neck obstructive disease associated with detrusor sphincter dyssynergia and intermittent catheterization. We have found a significant posterior bladder neck ledge (0.5 to 2.5 cm) in about 70% of such patients with spinal cord injuries. These ledges were not seen on x-ray films and on cystoscopic examination are seen as a raised bladder neck.

INDER PERKASH, MD
Stanford, California

REFERENCES

- Perkash I, Friedland GW: Real-time gray-scale transrectal linear array ultrasonography in urodynamic evaluation. *Semin Urol* 1985 Feb; 3:49-51
- Shapeero LG, Friedland GW, Perkash I: Transrectal sonographic voiding cystourethrogram: Studies in neuromuscular bladder dysfunction. *AJR* 1983 Jul; 141:83-90

Cognitive Rehabilitation

PERHAPS the most significant recent change in the rehabilitation of neurologic conditions such as stroke and brain trauma has been the emergence of cognitive rehabilitation as a concept and as a major component of treatment programs. This development has signaled a shift away from concentrating on the obvious physical deficits such patients display and towards actively treating the less immediately evident but ultimately often more disabling psychological deficits. Cognitive therapists delineate these individual deficits, which are theoretically innumerable but in practice are generally defined as problems with attention (both concentration and neglect), memory, visuospatial capabilities (right hemisphere), language (left hemisphere) and such "higher order" cognitive abilities as judgment, abstraction and social sensitivity. Obviously damage to the brain interferes to a greater or lesser extent with these cognitive processes, but the attempt to design specific therapeutic interventions is recent.

A distinction should be made between "cognitive rehabilitation" and "cognitive therapy." The latter derives from clinical psychological and psychiatric fields and essentially is concerned with the interaction of ideas and moods. Habitual thought patterns are felt to create or influence feeling. Cognitive therapy is a psychotherapeutic methodology and is usually applied to persons with depression, with the goal of altering the characteristic ideas of guilt, self-deprecation and so forth of these patients. Cognitive rehabilitation, in contrast, is based on presumed specific basic neuropsychologic deficits previously noted. These deficits are individually identified and usually quantified operationally for each patient, usually by means of neuropsychologic testing. For each defined cognitive deficit, such as inattention or memory dysfunction, specific therapeutic exercises are designed. These exercises require repetitive use of the impaired cognitive system in question, usually in a graded, progressively more demanding sequence. It is presumed these exercises promote recovery of the lost psychological process, which then generalizes to a consequent clinical benefit in overall functioning.

Basic examples of this approach are the recent advocacy of reality orientation groups and memory retraining for patients with stroke, head injuries and psychogeriatric populations. Frequent involvement of confused and disoriented patients in either formal or informal daily "reorienting" activity is reported to be beneficial overall in reducing general